ALBERTA ENVIRONMENTAL RESEARCH TRUST

CREATED BY LEGISLATIVE ENACTMENT APRIL 16, 1971

ANNUAL REPORT
For the Year 1988

89-05215/

HISTORY

The Alberta Environmental Research Trust was created in the spring of 1971 by enactment of the Legislative Assembly of Alberta to provide a mechanism for "the expansion of applied and fundamental research and development relative to environmental improvement."

Security against the inconsistencies of nature appears to have remained a constant goal throughout the history of human development.

In accomplishing this, humans have fought for thousands of years to free themselves from environmental restraints in their daily lives.

Certainly there is acceptance of the need for research to provide an "Environmental Census" not only in biophysical terms, but in terms of human values and perceptions.

Many people are asking whether some of the penalties we are paying as a result of environmental degradation caused by the human fight are too high.

A yearly grant is provided by the Government of the province of Alberta and contributions are accepted from other sources.

To serve this end, the Trust is enjoined to "seek and receive" the necessary funds allowing the organization to support environmental research.

Where feasible, the Trust will apportion grants of its funds for research in each year equally between persons or institutions that are supported entirely or mainly by public monies and those that are not.

Provision has been made for the operation of the Trust in a manner consistent with corporate operation and according to legislation specifically concerning Trust Funds in Alberta.

Since the inception of the trust the Trustee's have granted $4,678,192.00 of which $554,449.00 has been received from the private sector.

ANNUAL REPORT
For the
Year Ended December 31, 1988

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0405076-59-24

ALBERTA ENVIRONMENTAL RESEARCH TRUST

BOARD OF TRUSTEES

Chairman	Mr. W. Cary, P.Eng. Canmore	Mr. T. Maine Spruce Grove
	Mrs. B. Duckett Grande Centre	Mr. R. Brassard Olds - Didsbury
	Mr. G. Lambert Calgary	Mr. H.V. Page Edmonton
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	Prof. D.M. Taylor University of Calgary Architecture	Dr. D. Stokes Dept. of the Environment Human Systems
	Dr. W.A. Chanetski Canada Agriculture Toxicology	Mr. D.V. Currie, P. Geol. Alberta Chamber of Resources Ground Water

alberta environmental research trust

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In 1988 the Trust made further moves to seek funding from sources other than the annual Government grant.

The advertisement for applications, the Grant application form and the grant agreement were all changed to reflect both the need for and the listing of outside source funding on each project.

An arrangement was made with the Alberta Environmental Centre at Vegreville, to use their facilities and expertise where advantageous. Emphasis was placed on water quality projects which are seen as the most urgent environmental concern in Alberta.

The above passive changes, necessarily put the onus on the client researcher to seek or to provide the outside funds since the Trust was not in a position to take an active approach to the co-funding problem. However increased funding from Government was requested for 1989 to provide seed money for seeking of co-funding.

This is visualized as a partnership agreement with industry or an interested group in a large environmental project, over and above the normal funding provided by the Trust to individual smaller research projects.

One granting period only was completed early in 1988, when three renewals and four new grants were approved out of a total of (59) fifty-nine applications.

The Trust welcomed Harold Page, Gordon Lambert and Trevor Maine as new members. Mr. Page was formerly Chairman of the Grants Advisory Committee (G.A.C.).

The new Chairman of the G.A.C. is Dr. Brian Hammond, and new members of this hard working committee are Don Dabbs and Don Currie. The Trust and the G.A.C. voted to give the Ballantyne Award to Dr. Stewart Rood, of the University of Lethbridge for his project "Collection and assessment of Native Poplar Hybrids from proposed reservoir sites in the Oldman River Basin."

In summary 1988 was a year of small change to the fundamental side of the operation. More active change will be required in the future to address the shortage of funds for the many deserving projects submitted.

W. Cary, P.Eng.
Chairman
Alberta Environmental
Research Trust

Dr. E.E. Ballantyne Award for Excellence in Environmental Research, presented by Mr. W. Cary, Chairman of the Board in 1988 to Professor S.B. Rood, University of Lethbridge for his project "Collection and assessment of natural poplar hybrids from proposed reservoir sites in the Oldman River Basin"

ALBERTA ENVIRONMENTAL RESEARCH TRUST

Projects Completed and Continuing

Grant No.	Purpose of Grant	Grantee	Year	Amount of Grant	Grant to Date	Final Report Received
001	A Study of Environmental problems arising from oil spillage	The University of Calgary Mohtadi	1973 1974 1975	$14,500 12,000 18,500	$45,000	Yes
002	Preparation and evaluation of peat moss blocks and slabs for combating oil pollution	Research Council Mitchell	1973	$ 8,404	$ 8,404	Yes
003	Heavy Metals in Selected Crops and Soils of Alberta	The University of Alberta Pawluk and Dudas	1973 1974	$ 4,950 8,587	$13,537	Yes
005	A Study of the fate of emitted sulphur dioxide	The University of Alberta Bentley - Nyborg	1973 1974 1975	$27,000 27,000 38,200	$92,200	Yes
008	Activity and movement of Northern Pike	The University of Alberta Mackay	1973	$ 5,993	$ 5,993	Yes
011	Computer techniques for predicting various types of effluents on the environment	The University of Calgary Aziz	1973 1974	$15,000 15,000	$30,000	Yes
012	A study of the environment of the Whitecourt area of Alberta with particular regard to the effects of sulphur compounds	Whitecourt Environmental Study Group	1973	$54,250	$54,250	Yes
013	Microbial and Biochemical studies of Edmonton Industrial Lagoons	City of Edmonton	1973	$16,000	$16,000	Yes
015	Occupational and community risk of death from carbon monoxide in Calgary	The University of Calgary Hodgson	1973 1974	$14,650 15,084	$29,734	Yes
018	The spatial and economic impact of recreational expenditures and sales in the Pigeon Lake area of Alberta	The University of Alberta Ironside	1973	$ 2,208	$ 2,208	Yes
020	Odour control in pig wastes	The University of Alberta McQuitty	1973 1974	$ 1,650 1,500	$ 3,150	Yes

Grant No.	Purpose of Grant	Grantee	Year	Amount of Grant	Grant to Date	Final Report Received
025	The visual element in natural park evaluation	The University of Alberta Fuller	1973	$ 5,500	$ 5,500	Yes
033	Solid Waste Management in regards to recycling sawdust	M.B.M. Research Calgary	1973	$46,332	$46,332	Yes
034	Reclamation techniques on crude oil spills	The University of Alberta Toogood	1973 1974 1975	$19,000 19,000 22,850	$60,850	Yes
042	A study of epiphytic lichens in the vicinity of a gas processing plant	The University of Calgary Bird - Case	1973	$ 6,050	$ 6,050	Yes
043	Selection and survey of potential ecological reserves	The University of Alberta Fuller	1974 1975 1976	$16,000 20,000 22,000	$58,000	Yes
071	Task forces on urban environment	Edmonton Social Planning Council	1973	$16,350	$16,350	Yes
072	Use of field techniques in high school environmental studies	A.R.L. Fenna	1974	$ 2,500	$ 2,500	Yes
085	Reclamation and recycling for solid wastes	The University of Alberta Sprague	1973	$ 7,000	$ 7,000	Yes
093	Carcinogenic hydrocarbons as pollutants in the atmosphere of Calgary	The University of Calgary Hodgeson	1974	$28,020	$28,020	Yes
094	Recycling waste lubricating oils	Synergy West Limited Calgary, Joint Funded	1974	$21,800	$21,800	Yes
095	Clarification of waste water from tar sands	Wilson Mud Service	1974	$18,000	$18,000	Yes
096	Women and the Environment	Abercrombie & Stewart Edmonton	1974	$19,810	$19,810	Yes

Grant No.	Purpose of Grant	Grantee	Year	Amount of Grant	Grant to Date	Final Report Received
100	Anhydrous recovery of bitumen in a fluidized bed reactor	The University of Calgary Bennion	1974 1975 1976	$15,000 12,000 13,000	$40,000	Yes
103	Environment and Society in Alberta	The University of Alberta Stenn	1974	$13,100	$13,100	Yes
112	To investigate sulphur isotope abundances near gas processing plants	The University of Calgary Krouse	1974 1976	$ 5,400 4,000	$ 9,400	Yes
115	Automatic exhaust emission control under low ambient temperature conditions	The University of Calgary Karim	1974 1975	$12,500 7,000	$19,500	Yes
119	Removal of hydrocarbons from aqueous waste water	The University of Calgary Tollefson	1974 1975 1976 1977	$10,000 16,000 12,000 18,000	$56,000	Yes
125	Recycling waste lubricating oils Part II	Synergy West Limited Joint Funded	1975	$26,300	$26,300	Yes
134	A study of bacteria adherent to solid surfaces in fresh water environments	The University of Calgary Costerton	1975 1976 1977	$ 7,800 11,270 14,350	$33,420	Yes
140	Epiphytic lichens as biological indicators of air pollutants	The University of Calgary Calgary, Bird - Case	1975 1976	$ 6,720 6,110	$12,830	Yes
143	Effects of the Shell Waterton gas plant on Soils, Water and Rainfall	McKinnon, Allen and Associates	1975	$15,925	$15,925	Yes
145	The urban heat island of Calgary	The University of Calgary Nkemdirim	1975	$23,500	$23,500	Yes
146	Treatment of Tar sands tailings with fly ash	The University of Saskatchewan Bakshi	1975	$ 4,331	$ 4,331	Yes
147	Criteria and Priorities for funding research	Western Ecological Surveys, Edmonton	1976	$10,000	$10,000	Yes

Grant No.	Purpose of Grant	Grantee	Year	Amount of Grant	Grant to Date	Final Report Received
150	Carcinogenic hydrocarbons as potential environmental pollutants in Alberta resource development	The University of Calgary Peake	1976 1977 1978	$19,800 23,500 23,500	$66,800	Yes
151	Utilization of solar energy	The University of Alberta Weichman	1976 1977	$ 6,120 4,400	$10,520	Yes
173	Social implications of multiple family environments	Urban Research	1976	$24,850	$24,850	Yes
181	Wildlife production in Alberta	Synergy West Limited	1976	$25,700	$25,700	Yes
188	Control of Drift from aerial spraying	Lakeland College	1976 1977 1978	$ 5,100 8,200 8,600	$15,000	No
T0218	Heavy Metals and other elements in fly ash and their behaviour and influence in fly ash amended soil material	The University of Alberta Dudas	1977 1978 1979	$17,720 11,608 13,036	$42,364	Yes
T0224	Biodegradation of environmental pollutants	The University of Calgary Kapoor	1977 1978 1979	$15,000 17,000 16,500	$48,500	Yes
T0242	Investigation of sub-atmospheric in-situ leak detection methods for underground hydrocarbon storage tanks	Athabasca Research Corp. Limited Joint Funded	1977 1978 1979	$30,950 20,000 104,761	$155,711	Yes
T0244	Influence of parents and media on childrens' information values and behaviours toward the environment	The University of Calgary Fouts	1977	$ 9,606	$ 9,606	Yes
T0258	The problems and potential for spray irrigation of sewage in rural Alberta communities	The University of Calgary Tester	1977	$19,291	$19,291	Yes
T0261	Field investigations of the dispersion of pollution within an area of complex terrain	The University of Calgary Rowe Joint Funded	1977 1978	$50,000 35,000	$85,000	Yes

Grant No.	Purpose of Grant	Grantee	Year	Amount of Grant	Grant to Date	Final Report Received
T0269	Development of an environmental research inventory of projects and expertise in Alberta	Schick Information Systems Limited	1977	$78,000	$ 78,000	Yes
T0270	Characterization of toxic compound in waste drilling mud	Canadian Petroleum Association Joint Funded	1977 1978	$73,152 94,600	$167,752	Yes
T0290	The persistence in the Alberta Environment of carcinogens derived from used lubrication oils	The University of Calgary Sanderson	1978 1979 1980	$16,000 18,000 19,200	$ 53,200	Yes
T0317	Bottom fly ash in place of aggregate in asphalt stabilized soils	Consolidated Concrete Ltd. Edmonton Joint Funded	1977	$60,000	$ 60,000	Yes
T0318	Hydrology and water quality project for the Clifford E. Lee Nature Sanctuary	The University of Alberta Hodgetts	1978 1979	$ 9,185 2,375	$ 11,560	Yes
T0319	Salt water spills research in the Swan Hills	Canadian Petroleum Association Joint Funded	1978	$37,600	$ 37,600	Yes
T0324	Thermal pollution and variation in species composition in the Sheep River	R.R. Anderson Calgary	1970	$ 1,000	$ 1,000	Yes
T0330	Terrestrial ecology of the Clifford E. Lee sanctuary vegetation and birds	The University of Alberta Hodgetts	1979	$ 8,000	$ 8,000	Yes
T0336	Removal of organic pollutants from aquatic environments by bacterial activity	The University of Calgary Costerton	1978 1979 1980	$ 8,000 8,560 8,300	$ 24,860	Yes
T0340	Low levels of ethylene as a phytotoxicant	The University of Calgary Reid	1979 1980	$14,400 15,900	$ 30,300	Yes
T0345	Assessment of environmental impact of agriculture operations on rivers and river shore lands	Taylor & Manz Lethbridge	1979	$20,891	$ 20,891	Yes

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T0346	The nature of microbial symbrosis in plant shizosheath association	L.G.L. Limited Edmonton	1979 1980	$17,900 11,000	$ 28,900	Yes
T0347	Background radiation and activity level in drinking water and their correlation to the incidence of cancer	Tse Edmonton	1979	$19,995	$ 19,995	Yes
T0348	Converting fly ash into hydraulic cements	The University of Calgary Joshi	1979 1980	$18,500 19,950	$ 38,450	Yes
T0349	Ipiatik gas field facilities environmental location and design study	Amoco Canada Petroleum Ltd. Calgary, Joint Funded	1979	$31,656	$ 31,656	Yes
T0357	Identification of thresholds within the relationship of population growth and provision of services	A. Parkinson Calgary	1980	$10,000	$ 10,000	Yes
T0363	Use of aquatic invertebrates for monitoring environmental quality in the Peace and Athabasca Rivers	The University of Calgary Boerger	1979 1980	$ 7,400 5,000	$ 12,400	Yes
T0375	The effects of insecticides on Saskatoon pollen germination	Grande Prairie Regional College, Kozar	1980	$ 3,470	$ 3,470	Yes
T0383	Optimal energy effectiveness study of a means to establish preferred conditions for human work and recreation	The University of Alberta Nelson	1979 1980	$60,000 63,760	$104,092	Yes
T0384	Environmental change in the Canadian high arctic	The University of Alberta England	1980	$ 7,540	$ 7,540	Yes
T0387	The plant communities of Northern Alberta. A classification	The University of Alberta LaRoi	1980	$ 9,000	$ 9,000	Yes
T0388	Insect survey of the Clifford E. Lee Nature Sanctuary	The University of Alberta	1980	$12,300	$ 12,300	Yes

Grant No.	Purpose of Grant	Grantee	Year	Amount of Grant	Grant to Date	Final Report Received
T0395	Biophysical inventory of the Gregoire Lake area using colored infrared and Hand-Sat imagery	Amoco Canada Petroleum Ltd., Calgary Joint Funded	1979	$22,000	$22,000	Yes
T0404	Microbial transformation of Polycyclic Aromatic Hydrocarbons in soil End products of Benso (a) Pyrene	The University of Calgary Kapoor	1981 1982	$18,700 19,000	$37,700	Yes
T0405	Solar Legislation for the Province of Alberta	The University of Alberta Kruhlak	1981	$ 6,000	$ 6,000	Yes
T0406	Dispersion of stable Atmosphere on the Lee side of a ridge	The University of Calgary Rowe	1981	$10,000	$10,000	Yes
T0408	Assessment of human services in a Community about to be impacted by multiple industrial developments	Snow Hinton	1981	$ 6,500	$ 6,500	Yes
T0411	Intestinal helminths of dogs and cats in Southern Alberta Prevalence and public health significance	The University of Lethbridge, Lewis	1981	$ 9,600	$ 9,600	Yes
T0415	Environmental noise guidelines for Alberta. Background investigations and recommendations	Western Research & Development Balachandran	1981	$ 8,400	$ 8,400	Yes
T0419	Use of natural soil and synthetic liners to control lechate migration	Komex Consultants Ltd. Folkes	1981	$15,000	$15,000	Yes
T0421	Control of erosion following a brine spill in Boreal forested areas by recovery of mosses	The University of Alberta Webster, Joint Funded	1981	$10,700	$10,700	Yes
T0422	To conduct a study on forest growth and productivity on and adjacent to Seismic lines in West Central Alberta	Canadian Petroleum Association Joint Funded	1981 1982	$30,000 35,000	$65,000	Yes
T0423	A comparison of barriers and incentives for soft and hard paths in Canada	The University of Calgary Elder	1981	$18,313	$18,313	Yes

Grant No.	Purpose of Grant	Grantee	Year	Amount of Grant	Grant to Date	Final Report Received
T0427	Evaluation of avalanche hazard in Kananaskis Country	The University of Calgary McPherson	1981 1982	$17,050 22,000	$ 39,050	Yes
T0429	The water balance of three water basins in Edmonton	The University of Alberta Laycock-MacKenzie	1981 1982	$17,800 24,000	$ 41,800	Yes
T0430	Mechanism of information transaction from Pheromone to receptor molecule in the Orafactory organs of insects	The University of Calgary Wieser	1981 1982 1983 1984	$20,000 35,000 37,000 37,500	$129,500	Yes
T0433	Development of a computer model simulating the operation of an irrigation district in southern Alberta	The University of Alberta Verschuren	1981	$12,787	$ 12,787	Yes
T0435	An investigation into the factors affecting the survival of plains Cottonwood on the Milk River flood plain, Alberta & Montana	The University of Calgary Smith	1981	$ 7,000	$ 7,000	Yes
T0437	Reclamation of Brine spills in upland Boreal Forest areas	Canadian Petroleum Association Joint Funded	1981	$12,500	$ 12,500	Yes
T0438	Improvement of models to predict Lake greenness by inclusion of a Grazer Term	The University of Alberta Prepas	1981 1982	$15,200 19,380	$ 34,580	Yes
T0439	Land reclamation research project	Smokey River Surface Rights Society, Fahler, Alberta, Duby	1981	$26,956	$ 26,956	Yes
T0440	Complexity and stability of Boreal Forest ecosystems in the Hondo-Lesser Slave Lake area	The University of Alberta LaRoi	1981	$20,000	$ 20,000	Yes
T0441	Research into Land Farming for oily waste disposal	The University of Calgary Peake, Joint Funded	1981 1982 1983	$71,900 84,000 75,000	$230,900	Yes
T0442	Milner fly ash study	Pozzolanic Int. Ltd. Joint Funded	1982	$12,000	$ 12,000	Yes

Grant No.	Purpose of Grant	Grantee	Year	Amount of Grant	Grant to Date	Final Report Received
T0446	To improve Hardisty Lake water quality	Tensegrity Systems	1982	$ 8,000	$ 8,000	Yes
T0449	Energetics of Wildlife disturbance	The University of Alberta Hudson	1982	$20,000	$20,000	Yes
T0450	The effect of pesticides upon fresh water sloughs	The University of Guelph Lungle	1982 1983 1984 1985	$19,500 20,500 20,600 5,000	$65,600	Yes
T0457	Modern pollen rain of Boreal communities: production, composition and dispersal	The University of Alberta Schweger	1982	$9,350	$9,350	Yes
T0460	Boreal mixed wood vegetation ecology in the Hondo-Lesser Slave Lake area	The University of Alberta Strong	1982	$10,140	$10,140	Yes
T0463	Historical use of sensitive natural environments	The University of Alberta Brulotte	1982	$11,496	$11,496	Yes
T0472	Variation in Nitrogen status of Boreal vegetation and soils	The University of Alberta Fyles	1982 1983 1984	$11,744 13,344 5,425	$30,513	Yes
T0475	Simulated acid rain	The University of Calgary Ladd	1982	$18,235	$18,235	Yes
T0476	Population estimates of nesting Ferruginous Hawks in SE Alberta	The Arctic Institute of North America, Schmutz	1982	$12,670	$12,670	Yes
T0482	Wildlife habitat retention on Private Agricultural land	The University of Calgary McFarlane	1982	$ 8,625	$ 8,625	Yes
T0491	Investigation of Bituminous and Coal-like materials in waste tailings from Oil Sands recovery as Energy Sources	The University of Calgary Tollefson	1982	$35,000	$35,000	Yes

Grant No.	Purpose of Grant	Grantee	Year	Amount of Grant	Grant to Date	Final Report Received
T0502	Fish Disease interbasin transfer	Techman Engineering Ltd., Calgary McAllister & Mindy	1982	$22,850	$22,850	Yes
T0511	Microbiological conversion of Phenolics to Methane	The University of Alberta Fedorak	1982	$32,000	$32,000	Yes
T0518	Management of Environmental Problems	The University of Calgary Thompson & McKay	1982	$ 8,950	$ 8,950	Yes
T0519	Comparative health hazards — Sludged vs. Farm fields	The University of Calgary Lehmann	1982	$30,485	$30,485	Yes
T0521	Ski area development, waste management	The University of Calgary Corrigal	1982	$8,500	$8,500	Yes
T0524	Dog & Cat Parasites and Giardia in Public water	The University of Lethbridge, Lewis	1982	$27,300	$27,300	Yes
T0526	Burial depth criteria for pipeline river crossings in Alberta	Hydrocon Engineering Ltd., Calgary, Veldman	1982	$18,975	$18,975	Yes
T0532	Recovery of rubber processing oils from cured rubber scrap	Turbo Manufacturing Ltd., Johnson Joint Funded	1982	$28,100	$28,100	Yes
T0604	Study of Thresholds in Municiple Servicing with methods of financing and the impact of economic reversals	A. Parkinson	1983	$12,400	$12,400	Yes
T0608	A reference collection of Alberta aquatic insects for use in Environmental studies	The University of Calgary G. Pritchard	1983 1984 1985	$18,800 20,000 22,526	$61,326	Yes
T0612	A compendium of environmental data on Alberta reservoirs	R.L. & L. Environmental Services	1983	$17,900	$17,900	Yes
T0613	A three dimensional model for contaminent transport in a groundwater	The University of Alberta Schwartz & Collette	1983	$ 7,700	$ 7,700	Yes

Grant No.	Purpose of Grant	Grantee	Year	Amount of Grant	Grant to Date	Final Report Received
T0621	Socio-Economic impacts of the decision to suspend Esso Resources' Cold Lake project	The University of Calgary Dr. Ross & McCracken	1983	$ 8,075	$ 8,075	Yes
T0625	Documentation of corrosivity of groundwater	The University of Calgary Dr. W.J.D. Shaw	1983 1984 1985	$18,000 12,500 14,400	$44,900	Yes
T0628	Solid waste contaminant and disposal practices in the resource processing industry of Alberta	Komex Consultants Ltd. B.H. Conlin	1983	$17,400	$17,400	Yes
T0632	Water quality of the Bow River: The chemical mass-balance and depletion factor approach	The University of Calgary Kananaskis Centre S.A. Telang	1983 1984 1985	$25,000 26,540 28,000	$79,540	Yes
T0634	Host reservoirs of Giadiasis	The University of Calgary Kananaskis Centre Dr. P. Wallis	1983 1984 1985	$33,000 30,430 30,000	$93,430	Yes
T0654	Analysis and modification of the thermal performance of attached greenhouses for residential space heating in Alberta	The University of Calgary Dept. of Geography R.E. Leckie	1983	$ 5,000	$ 5,000	Yes
T0661	Analysis and publication of 14 years of raptor banding data: Habitat requirements, reproductive performance and growth rates of nestlings	J.K. Schmutz c/o The Arctic Institute of North America	1983	$ 8,430	$ 8,430	Yes
T0663	Biological Effects of Water drawn-down in a mountain power reservoir in Kananaskis Country	The University of Calgary B.H. Sechers Joint Funded	1983 1984 1985	$20,000 10,000 10,000	$40,000	Yes
T0666	Evaluation of man made seismicity induced by engineering developments in Alberta	Dr. T. Vladut Calgary	1983	$18,150	$18,150	Yes
T0672	Legal constraints on Alberta Water Management	The University of Calgary Canadian Institute of Resources Law A.R. Lucas	1983	$12,000	$12,000	Yes

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T0678	Captive population Management of the Endangered Swift Fox (Vulpes Velox)	The University of Calgary Faculty of Environmental Design Herrero & Schroeder	1983	$ 9,083	$ 9,083	Yes
T0701	Reclamation Potential of Oil Sands Tailings from a Novel Process	C-H Synfuels Ltd. S.J. Lane	1983	$22,750	$22,750	Yes
T0708	Geophysical Detection of Gas Plant Leachate	Groundwater Consultants Ltd. D.W. Berand	1983	$19,800	$19,800	Yes
T0714	An Investigation into the use of Microorganisms for removal of Heavy Metal from Effluents	Gemini Biochemical Research Ltd. J.R. Roth	1983	$16,000	$16,000	Yes
T0720	An Evaluation of Shelterbelt Development in Alberta	The University of Calgary J.M. Mahoney	1983	$ 7,200	$ 7,200	Yes
T0802	Anaerobic Biological Degradation of Hazardous Organic Chemicals	The University of Alberta S.E. Hrudey	1984 1985 1986	$19,500 20,000 22,000	$55,957	No
T0813	Langevin Community Greenhouse and Garden Study	Mr. S. King	1984	$ 1,900	$ 1,900	Yes
T0814	The Influence of sediment-released phosphorus on lake greenness in deep Alberta lakes	The University of Alberta E.E. Prepas	1984 1985 1986	$15,000 20,500 21,800	$57,300	Yes
T0857	Enhanced Adsorption of light Organics on Activated Carbon	The University of Alberta P.M. Huck	1984 1985	$10,800 10,800	— $21,600	Yes
T0861	Fire Frequencies on different landscape units in the Kananaskis Watershed	The University of Calgary E.A. Johnson	1984 1986	$19,900 20,300	$40,200	Yes
T0862	Developing and Testing of Chemical Disposal Methods for Hazardous Pharmaceuticals	The University of Alberta M.A. Armour	1984 1985 1986	$11,250 11,500 12,422	— 35,172	Yes

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T0874	Small mammals and Afforestation in Coal mine Reclamation	McCourt Management D.F. Penner	1984 1985	$19,140 20,810	$39,950	Yes
T0879	Effect of E.R.C.B. Guidelines on Oil Waste Processing and Disposal Facilities	The University of Calgary M.B. Mayer	1984	$ 4,476	$ 4,476	Yes
T0880	Impact of Acquatic Weeds on the Performance of Irrigation Conveyance Systems in Southern Alberta	The University of Calgary D.H. Manz	1984	$18,300	$18,300	Yes
T0903	Evaluation of the Physiological adaptations of native grass species with potential use in alpine revegetation	The University of Alberta H.D. Addy	1984	$ 4,400	4,400	Yes
T0926	Production of Monoclonal Antibodies for the Detection of Giardia	The University of Alberta Wenmam	1985 1986 1987	$21,500 26,000 26,500	$43,886	No
T0929	Development and Application of an expert system in contaminant Hydrology	The University of Alberta Schwartz	1985 1986 1987	$ 8,000 7,400 7,400	$22,800	Yes
T0935	Competition and stress averaging in rhizomatous plants with reference to their potential use in reclamation	The University of Alberta Rodgers	1985	$ 1,546	$ 950	No
T0937	Ozone disinfection of wastewater containing antibiotic resistant bacteria	The University of Alberta Smith	1985 1986 1987	$15,000 20,000 15,000	$50,000	Yes
T0953	Timber operations and water quality management in Southwest Alberta	The University of Calgary Shaw	1985	$ 9,300	$ 9,300	Yes
T0954	The effects of increased salinity on rivers in southern Alberta	The University of Calgary Davies	1985	$18,160	$18,160	Yes
T0969	The Calgary Zoo and Alberta Fisheries and Aquatic Habitat display feasibility study	E.M.B. Poulsen Calgary	1985	$ 8,400	$ 8,400	Yes

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T0974	The domestic waste recycling industry in Alberta	Strategic Development Services Ltd. Calgary	1985	$10,950	$10,950	Yes
T01008	Foundrie baghouse dust waste Characterization	Enviro-Test Laboratories Edmonton	1985	$18,650	$18,650	Yes
T01010	Review of regulatory control of specified activities and their implications for Ground Water management	Environmental Law Centre Edmonton	1985	$13,300	$13,300	Yes
T01014	Mycotrophy Microhabitat and propagation of native orchids	The University of Alberta Currah	1985 1987	$15,597 18,727	$34,324	Yes
T01016	Collection and assessment of natural poplar hybrids from proposed reservoir sites in the Oldman River Basin	The University of Lethbridge Rood	1985 1986 1987	$10,800 14,400 14,400	$38,600	Yes
T01033	A case study of Hanna Alberta	The University of Calgary Swan	1985	$ 6,700	$ 6,700	Yes
T01036	On the effects of burning on Pronghorn Antelope Range Quality	The University of Calgary Courtney	1985	$11,750	$11,750	Yes
T01038	Computerized Bibliography of Alberta mammals and birds	D.M. Ealy Environmental Service Ltd. Edmonton	1985	$ 1,590	$ 1,590	Yes
T01050	Annotated Bibliography on the planning of resort Community	C.B. Callaway Calgary	1985 1986	$ 3,405 2,637	$ 6,042	Yes
T01068	A detailed ecological study of a saxicolous crutose lichen community in Jasper National Park	The University of Alberta E.A. John	1985 1986	$ 7,062 9,500	$15,612	No
T01071	Establishing nesting vegetation for migratory waterfowl on manmade islands in central and southern Alberta	The University of British Columbia Pitt	1986	$ 6,560	$ 5,903	No

Grant No.	Purpose of Grant	Grantee	Year	Amount of Grant	Grant to Date	Final Report Received
T01077	The role of nitrogen in reclamation of Sulphur laden soils	The University of Calgary Nyborg	1986	$ 7,300	$ 7,300	Yes
T01091	Development of Environmental education programs for Kananaskis Country	P.R. Hunt Calgary	1986	$20,875	$20,875	Yes
T01101	Incidence of Legionella, Aeromonas and Campylobacter in municipal source water and treated drinking water	City of Calgary Hargesheimer	1986 1987	$27,875 13,750	$41,625	Yes
T01104	The Quality control of field seam integrity in hazardous waste site synthetic liners Mechanical Testing	Hanson Materials Engineering Edmonton	1986	$25,000	$25,000	Yes
T01134	Role of benthic invertebrates in nutrient cycling in lakes	The University of Alberta Mackay	1986	$23,096	$20,696	No
T01252	Evaluations of methods for the reduction in herbicide usage through an enhancement and synchronization of weed seed germination	The University of Alberta Spencer	1986	$17,250	$17,250	Yes
T01264	Effects of herbicide on the foraging aspects of aquatic predators of mosquito larvae	Canadian Union College Ramalingham	1986	$ 7,500	$ 6,175	No
T01270	Attitudes of Edgemont residents living next to a semi-wilderness areas	G.A. Layton Calgary	1986	$ 7,111	$ 7,111	Yes
T01315	The effects of weather upon breeding and survival of Peregrine falcons	R. Wayne Nelson Camrose	1987	$ 2,750	$ 2,750	Yes
T01327	Evaluation of Coliphage virus enumeration as a surrogate indicator of human enteric viruses in Alberta surface waters and treated drinking waters	City of Calgary Hargesheimer	1987	$30,000	$24,620	No

Grant No.	Purpose of Grant	Grantee	Year	Amount of Grant	Grant to Date	Final Report Received
T01335	Inoculation technology for growing nodulated mycorrhizal N_2 — fixing schrubs (buffalo berry — silver berry) in a commercial greenhouse	The University of Calgary Vissor	1987	$13,650	$ 7,930	No
T01356	Shrub recolonization patterns in disturbed areas of the Rocky Mountain Foothills	The University of Calgary Zbighiewicz	1987 1988	$ 9,045 9,350	$14,377	No
T01377	Effects of plant tolerance to $S0_2$ on endowycorrhizas	The University of Calgary Claperton	1987 1988 1989	$18,640 17,500 20,300	$12,728	No
T01391	Field measurement of wind errodea soils in southeastern Alberta	The University of Calgary White	1987 1989	$17,870 9,900	$14,074	No
T01406	A guide to the Aquatic Invertebrates of Alberta	The University of Alberta Dr. H.C. Clifford	1988	$14,600	$ 7,191	No
T01477	Research into the development of a Packaged Anaerobic Wastewater Treatment system	David Bromley Engineering (1983) Ltd. J.E. Selann	1988	$19,500	$19,500	Yes
T01460	Near field mixing of effluent discharges in shallow rivers	The University of Alberta John Hodgson	1988	$12,000	$12,000	Yes
T01481	Baseline study of the Dogpound Creek	Mount Royal College R.W. Sloan	1988 1989	$ 9,495 10,000	$ 9,495	No
T01501	An inventory and update and verdict on biological water conserving household sewage systems	ARE-Alternatives and retrofit Engineering Inc.	1989	$12,000	$ 6,600	No
T01501	Seed production and establishment requirements of rough fescue F. hallii and F. campestris	The University of Alberta Dr. J.R. King	1989	$ 9,400	—	No
T01547	The interpretation of metal analysis data in the assessment of potentially hazardous wastes	Norwest Soil Research Ltd. Dr. J. Ashworth	1989	$ 9,200	—	No

ALBERTA LEGISLATURE

OFFICE OF THE AUDITOR GENERAL

AUDITOR'S REPORT

To the Board of Trustees of the
Alberta Environmental Research Trust

I have examined the balance sheet of the Alberta Environmental Research Trust as at March 31, 1989 and the statement of revenue, expenditure and unexpended funds for the fifteen months then ended. My examination was made in accordance with generally accepted auditing standards, and accordingly included such tests and other procedures as I considered necessary in the circumstances.

In my opinion, these financial statements present fairly the financial position of the Trust as at March 31, 1989 and the results of its operations and the changes in its financial position for the fifteen months then ended in accordance with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

Donald D. Salmon

F.C.A.
Auditor General

Edmonton, Alberta
May 12, 1989

Alberta Environmental Research Trust
Balance Sheet
As At March 31, 1989

	March 31, 1989	December 31, 1987
Assets		
Current:		
Cash	$198,359	$180,516
Travel advance to employee	500	500
Prepaid insurance	1,402	1,963
Accounts receivable	—	580
	$200,261	$183,559
Liabilities		
Current:		
Research grants payable	$ 21,017	$ 40,602
Accounts payable	5,148	2,290
	26,165	42,892
Unexpended funds	174,096	140,667
	$200,261	$183,559

The accompanying notes are part of these financial statements.

Alberta Environmental Research Trust
Statement of Revenue, Expenditure and Unexpended Funds
For the Fifteen Months Ended March 31, 1989

	Fifteen months ended March 31, 1989	Twelve months ended December 31, 1987
Revenue		
Grants from the Province of Alberta:		
Department of the Environment	$300,000	$260,000
Interest	30,459	19,446
Sale of reports	—	145
	330,459	279,591
Expenditure		
Research grants	198,641	258,196
Salaries and benefits	62,335	48,400
Travel and entertainment	13,588	7,825
Printing and office supplies	11,790	9,389
Honoraria	7,814	940
Awards	1,000	500
Miscellaneous	1,862	1,826
	297,030	327,076
Excess (deficiency) of revenue over expenditure	33,429	(47,485)
Unexpended funds at beginning of period	140,667	188,152
Unexpended funds at end of period	$174,096	$140,667

Alberta Environmental Research Trust
Notes to the Financial Statements
March 31, 1989

Note 1 Authority

The Alberta Environmental Research Trust operates under the authority of the Alberta Environmental Research Trust Act, Chapter A-20, Revised Statutes of Alberta 1980, as amended.

Note 2 Changes in Financial Position

A statement of changes in financial position is not provided as disclosure in these financial statements is considered to be adequate.

Note 3 Change in Year-End

The year-end of the Trust was changed from December 31 to March 31 to be consistent with the year-end used by the Province of Alberta.

Note 4 Administration Costs

Equipment, furniture and certain overhead costs incurred in the administration of the Trust have been borne by the General Revenue Fund and are not reflected in these financial statements.

Note 5 Commitments for Research Grants

The Trust had commitments outstanding as at March 31, 1989 totalling $84,258 (1987 $101,749) for approved projects. In addition, applications totalling $21,000 (1987 $162,181) have been reviewed and recommended by the Grants Advisory Committee for approval by the Board of Trustees in May 1989.

Note 6 Approval of Financial Statements

These financial statements were approved by management.

Office of the Auditor General

CONTRIBUTIONS PRIVATE

There were no private contributions in the year 1988; total contributions to the trust since its inception are $554,449.00.

GOVERNMENT OF THE PROVINCE OF ALBERTA

ALBERTA ENVIRONMENTAL RESEARCH TRUST ACT

CHAPTER A-20
REVISED STATUTES OF ALBERTA 1980

Printed by Queen's Printer

11510 Kingsway Ave.
Edmonton, T5G 2Y5
427-4952

J.J. Bowlen Bldg.
620 - 7th Ave. S.W.
Calgary, T2P 0Y8
261-6251

ALBERTA ENVIRONMENTAL RESEARCH TRUST ACT

CHAPTER A-20

HER MAJESTY, by and with the advice and consent of the Legislative Assembly of Alberta, enacts as follows:

Definitions

1 In this Act,

(a) "property" means real and personal property, including contractual benefits, patent rights, money, rights in futuro and choses in action generally;

(b) "Trust" means the Alberta Environmental Research Trust incorporated by this Act.

1971 c31 s1

Incorporation

2 There is hereby established a corporation with the name "Alberta Environmental Research Trust" consisting of the trustees appointed by or pursuant to section 5.

1971 c31 s2; 1975(2)c53 s2

Objects

3 The objects of the Trust are

(a) to seek and receive property by gift, bequest, devise, transfer or otherwise, and

(b) subject to any prior trust conditions imposed on the use of the property, or the income from it, or from any of it, to hold, use and administer it for the purpose of provincial expansion of applied and fundamental research and development relative to environmental improvement.

1971 c31 s3

Duties and powers

4 The Trust

(a) shall apply its property or expend the income therefrom for particular purposes, including trust conditions imposed, that might not otherwise be readily met out of public funds;

(b) shall invest its funds in securities authorized by law for investment of trust funds or as may be directed by the donor;

(c) may enter into contracts and do all other things necessary, desirable or expedient to effect its objects;

(d) shall endeavour, to the extent that it considers it reasonably feasible to do so, to apportion grants of its funds for research in each year equally between persons or bodies that are supported entirely or mainly by public money and those that are not.

1971 c31 s4;1972 c7 s2

Board of Trustees

5(1) There shall be a board of trustees for the Trust consisting of the Deputy Minister of the Environment and 7 other persons appointed by the Lieutenant Governor in Council.

(2) The term of office of a trustee appointed by the Lieutenant Governor in Council shall be 3 years from the date of his appointment unless otherwise specified by the order making the appointment.

(3) The board of trustees shall elect a chairman from among its members by the affirmative note of a majority of the trustees then holding office.

(4) The board may appoint any advisors it considers necessary.

(5) The Minister of the Environment may provide any employees necessary to carry out secretarial, clerical and accounting duties and other work required by the board.

(6) A majority of the trustees holding office constitutes a quorum.

(7) The trustees shall meet at least once a year on a date to be fixed by the chairman.

(8) The Minister of the Environment may authorize, fix and provide for the payment of remuneration and expenses to the trustees.

1971 c31 s5;1972 c7 s3;1975(2) c58 s3

By-laws

6(1) The trustees may make by-laws respecting

(a) the appointment, functions, duties and removal of all agents, officers and employees of the Trust and their remuneration;

(b) the time and place for the meetings of the trustees and the procedure to be followed at the meetings;

(c) the general conduct of the business and affairs of the Trust.

(2) A by-law does not become effective

(a) unless it is passed by a majority of the trustees holding office, and

(b) until it is approved by the Minister of the Environment.

(3) A by-law signed by a majority of the trustees holding office is as valid and effective as if passed at a meeting of the trustees.

1971 c31 s6;1972 c7 s4

Committees

7(1) The trustees may at any time delegate any of their powers to committees consisting of such of the trustees and of such other persons as the trustees consider advisable.

(2) A committee so formed shall, in the exercise of the powers so delegated, conform and be subject to the directions, restrictions and by-laws, if any, that are imposed on it by the trustees.

1971 c31 s7

Bill 64
Mr. D. Anderson

ENVIRONMENT STATUTES AMENDMENT ACT, 1981

As revised pursuant to section 6 of
The Revised Statutes 1980 Act

CHAPTER 67

(Assented to December 2, 1981)

HER MAJESTY, by and with the advice and consent of the Legislative Assembly of Alberta, enacts as follows:

Alberta Environmental Research Trust Act

RSA 1980 cA-20

1(1) The Alberta Environmental Research Trust Act is amended by this section.

(2) Section 3(b) is amended by adding "and development" *after* "research".

(3) Section 4(d) is amended by adding "and development" *after* "research".

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PREVIOUS MEMBERS

BOARD OF TRUSTEES

D. Anderson	Calgary
A. Avery	Ft. McMurray
* E.E. Ballantyne	Edmonton
F.D. Bradley	Blairmore
R.L. Colborne	Wetaskiwin
D.G. Colley	Calgary
* G. Conway	Edmonton
R. Cook	Edmonton
D.V. Currie	Edmonton
* E.E. Daniel	Edmonton
* Mrs. Elly De Jongh	Edmonton
Dr. A.B. Jones	Edmonton
H. Lembiez	Red Deer
G.J. Maier	Calgary
* Mrs. B. Mitchell	Edmonton
W.J. Mooney	Calgary
* W.R. Neufeld	Grande Prairie
C. Lynn Phillips	Lac la Biche
* R.A. Ritter	Calgary
* R. Scammel	Red Deer
K.R. Stiles	Calgary
W. Solodzuk	Edmonton
A.R. Smith	Calgary
D.C. Weidner	Lacombe

GRANTS ADVISORY COMMITTEE

D.A. Boag	Edmonton
D.A. Birdsall	Edmonton
P. Boothroyd	Edmonton
D.V. Currie	Edmonton
G.D. Greene	Calgary
S. Herrero	Calgary
R.A. Hursey	Edmonton
Dr. A.B. Jones	Edmonton
R. Leach	Edmonton
N.M. Krawetz	Edmonton
T.W. Manning	Edmonton
W.R. MacDonald	Edmonton
R.D. Rowe	Calgary
H.S. Sandhu	Edmonton
H.P. Sims	Edmonton
D.J. Smith	Edmonton
S.B. Smith	Edmonton

* DENOTES ORIGINAL BOARD MEMBER

I.S.S.N. 0319-3608